

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 21, 23-26, 28-33, 45, 48 and 49 remain active in this case, Claims 21 and 26 having been amended by the present amendment, and Claims 1-20, 22, 27, 34-44, 46 and 47 having been previously canceled.

In the outstanding Office Action, Claims 21, 23, 24, and 32 were rejected under 35 U.S.C. §103(a) as unpatentable over Bruce (U.S. Publication No. 2004/0240991) in view of Dittberner (U.S. Patent No. 4,792,277) and Fujii (U.S. Patent No. 5,660,480); Claims 26, 28, 33, and 45 were rejected under 35 U.S.C. §103(a) as unpatentable over Bruce in view of Yamamoto (U.S. Patent No. 6,874,942) and Fujii; Claim 49 was rejected under 35 U.S.C. §103(a) as unpatentable over Bruce in view of Yamamoto, Fujii, and Tsuji (U.S. Patent No. 6,234,678); Claims 21 and 23 were rejected under 35 U.S.C. §103(a) as unpatentable over Bruce in view of Dittberner and Yamamoto; Claim 48 was rejected under 35 U.S.C. §103(a) as unpatentable over Bruce in view of Dittberner and Yamamoto, and in further view of Tsuji; Claim 25 was rejected under 35 U.S.C. §103(a) as unpatentable over Bruce in view of Dittberner, Yamamoto and in further view of Ghosh (U.S. Patent No. 5,190,450); Claim 29 was rejected under 35 U.S.C. §103(a) as unpatentable over Bruce in view of Yamamoto, Fujii, and in further view of Ghosh; Claims 21, 24, 25, and 30 were rejected under 35 U.S.C. §103(a) as unpatentable over Ghosh in view of Yamamoto; and Claims 26, 29, and 31 were rejected under 35 U.S.C. §103(a) as unpatentable over Ghosh in view of Fujii and Yamamoto.

In light of the outstanding ground for rejection, Claims 21 and 26 have been amended to clarify the claimed invention, thereby to more clearly patentably define over the cited prior art. To that end, Claims 21 and 26 are amended to clarify the feature of the coating as

“including gradient alloy layers.” Support for this clarifying feature can be found in the original specification, for example, at page 11, lines 11-17. Thus, no new matter is added.

In view of the present amendment, Applicants respectfully submit that the outstanding grounds for rejection based on the cited prior art have been overcome. Accordingly, **Applicants respectfully request reconsideration and withdrawal of these rejections, as next discussed.**

Claims 23 and 28 stand rejected based in part on Bruce, which describes coatings of WC being applied to metallic surfaces to reduce friction forces and reduce wear [0039]. However, as acknowledged at page 2 of the Office Action, Bruce does not disclose or suggest that “the engaging portions are formed on longitudinal ends of the rotation member.” To cure this deficiency, the Office Action relies on Dittberner and asserts that “it would have been obvious ... to modify the teachings of Bruce and proved that engaging portions are formed on both longitudinal ends of the rotation member.” Applicants respectfully disagree.

Bruce described that the coating 360, 370 (asserted in the Office action as corresponding to the claimed coating) is provided to improve the wear at the interface between bushing assemblies 310, 410 and the vane stem 350. Because the longitudinal end of the vane stem 350 is not disposed between the bushing assembly 310, there would be no apparent reason to modify the longitudinal ends of the vane stem 350 of Bruce to include any coating 360, 370, as asserted in the Office Action.

Attention is respectfully directed to the recently issued “Examination Guidelines Update: Developments in the Obviousness Inquiry after KSR v. Teleflex,” Federal Register Vol. 75, No. 169, effective September 1, 2010. As noted in Example 4.4 of the Guidelines, “A combination of known elements would have been prima facie obvious if an ordinarily skilled artisan would have recognized an apparent reason to combine those elements and would have known how to do so.” *Ecolab, Inc. v. FMC Corp.*, 569 F.3d 1335 (Fed. Cir.

2009). As above explained, there is “no apparent reason” to modify the longitudinal ends of the vane stem 350 of Bruce to include any coating 360, 370, and thus the outstanding rejection is traversed on that basis.

Further, with respect to Claim 26, the Office Action on Page 4 asserts that “where 310 meets 330” of Bruce discloses the claimed “supporting portion configured to rotatably support each longitudinal end of the rotation member.” However, as already acknowledged on page 2 of the Office Action and as seen in Fig. 3 of Bruce, the upper longitudinal end of the vane stem 350 is free and therefore not supported by any supporting portion, as recited in Claim 26.

Further, it is respectfully submitted that the remaining cited references (Ghosh, Fujii, Yamamot and Tsuji) do not cure the above-noted deficiencies of Bruce and Dittberner.

Additionally, it is respectfully requested to assess patentability on the basis of the newly introduced feature of the coating “including gradient alloy layers”. The “gradient alloy layers,” as will be understood from the description on page 11, line 11-17, gives greater cohesive strength between the coating and the engaging portions (Claim 21) or the bearing (Claim 26).

Turning to Bruce, while the coating 360, 370 applied by a plasma spray coating or Physical Vapor Deposition (see paragraph [0039]) may contain a wear resistant material such as WC, titanium nitride or CC-Co alloys (see paragraph [0039]) and a friction modifier such as carbon in the form of graphite, Bruce fails to teach or suggest that the coating contains gradient alloy layers. The remaining cited references do not cure the deficiencies of Bruce. Thus, it is respectfully submitted that amended Claim 21 and 26 are clearly not rendered obvious over Bruce in view of the remaining cited references.

Therefore, reconsideration and withdrawal of the outstanding grounds for rejection of independent Claims 21 and 26, and all claims dependent thereon, is respectfully requested.

Consequently, in view of the present amendment and in light of the above comments, no further issues are believed to be outstanding, and the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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